pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NORTHWEST REGIONAL OFFICE
CLEAN WATER PROGRAM

WATER QUALITY MANAGEMENT PERMIT INTERNAL REVIEW AND RECOMMENDATIONS

Application Type	**Amendment**	Application No.	**2489202 A-8**
Facility Type	**Industrial**	APS ID	**513130**
WQM Type	**Minor**	Authorization ID	**954947**

Applicant and Facility Information

Applicant Name	**Advanced Disposal Service Greentree Landfill, LLC**	Facility Name	**Advanced Disposal Service Greentree Landfill**
Applicant Address	635 Toby Road	Facility Address	635 Toby Road
	Kersey, PA 15846-1033		Kersey, PA 15846
Applicant Contact	Donald Henrichs	Facility Contact	Donald Henrichs
Applicant Phone	(814) 265-1744	Facility Phone	(814) 265-1744
Client ID	148625	Site ID	245233
SIC Code	4953	Municipality	Fox Township
SIC Description	Trans. & Utilities - Refuse Systems	County	Elk
Purpose of Application	WQM Part II Amendment		

Internal Review and Recommendations

Act 14 - Proof of Notification was submitted.

The WQM Permit Amendment application was received on December 4, 2012.

The original WQM Permit was issued on May 17, 1989.

All discharges will remain permitted under NPDES Permit PA0103446.

WQM Part D: This permit amendment approves the modification of industrial waste facilities consisting of:

A name change from Veolia ES Greentree Landfill, LLC to Advanced Disposal Service Greentree Landfill, LLC.

The Leachate Equalization Impoundment (LEI) will be converted from wastewater storage to wastewater treatment to provide thermal and chemical conditioning of CWT wastewaters. The high-strength gas well leachate will flow to the LEI after pretreatment for conditioning prior to flowing to the SBRs for biological treatment.

The MemClean unit will be added following the solids contact clarifier and reaction tanks that were permitted under amendment #7 and combined they will be used as a two-step post-biological metals removal train.

Approval is granted for the installation of two new positive-displacement blowers to Tanks 1-1T and 1-2T, and a permanent chiller to cool the SBR wastewater. Also approved is the addition of Sodium Hypochlorite solution for disinfection in the MemClean unit, and Sodium bisulfate (40%) solution for dechlorination at the outflow from Tank 1-2T. The scale inhibitor, NS SF 450, produced by Neo Solutions, Inc. has been approved for use with this amendment for use in the effluent polishing drum filter.

Approve	Return	Deny	Signatures	Date
X			Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	
X			David G. Balog, P.E. / Environmental Engineer Manager	
X			John A. Holden, P.E. / Program Manager	

Industrial Wastewater Treatment Facility:		
Annual Average Flow:	**0.250**	MGD
Design Hydraulic Capacity:	**0.250**	MGD
Design Organic Capacity:	**N/A**	lbs/day

This permit amendment focuses mainly on the change of the use of the existing Leachate Equalization Impoundment (LEI) from wastewater storage to wastewater treatment providing thermal and chemical conditioning of CWT wastewaters. This change is expected to reduce the frequency and duration of the use of the now permanent electric chiller on site to cool the SBR wastewater. It is also expected to improve the chemical blending of the leachates.

The high-strength gas well leachate from on site is segregated from the conventional leachate and other third-party wastes and receives sedimentation and flow through anaerobic and aerobic up-flow bio-towers. Under Amendment #6, the gas well leachate then combined with the conventional leachate and other third-party wastes and then the three wastestreams were to be directed to the nitrifying sequencing batch reactors (SBRs) for treatment.

Under this amendment, the high-strength gas well leachate will continue to receive segregated pretreatment in the bio-tower treatment train, but it would then flow to the LEI for thermal and chemical conditioning with untreated conventional leachate prior to going to the SBRs for aerobic biologic treatment.

Details of the modifications to be permitted are as follows:

- A new fixed speed, 100 HP, positive-displacement aeration blower has been installed at Tank 1-1T to promote partial biological treatment of organics and ammonia.
- A new VFD-driven, adjustable-speed, 125 HP, positive-displacement aeration blower has been installed at Tank 1-2T for potential biological polishing of residual ammonia.
- A permanent chiller for the SBR wastewater was installed including a manually cleaned duplex basket strainer to prevent debris from fouling the chiller's heat exchanger.
- The permitted solids contact clarifier with reaction tanks in Amendment #7 will continue to be used for post-biological metals removal. A slightly acidic pH coagulation, precipitation, and sedimentation process within the chemical reaction modules and the solids contact clarifier will be the first step. The next step will utilize the existing MemClean unit that was taken off-line under Amendment #7. The MemClean unit will be used for additional coagulation, precipitation, and sedimentation at a pH between 9 and 10. The addition of two-stage metals removal is expected to aid in metals removal and result in less residual color in the effluent.
- Sodium Hypochlorite solution is approved for addition in the MemClean unit for disinfection with a contact time within Tank 1-2T. Sodium bisulfate (40%) solution is approved for addition to the outflow from Tank 1-2T to remove excess residual chlorine prior to discharge to the Little Toby Creek.
- A drum filter is used for effluent polishing. An anti-scaling chemical may be used periodically to reduce filter fouling of the drum. The scale inhibitor produced by Neo Solutions, Inc. - NS SF 450 has been approved for use with this amendment (see Page 3).

Outfall 001 - Chemical Additives Review

Neo Solutions, Inc. - NS SF 450

Application to effluent polishing drum filter for anti-scaling prior to Outfall 001.

The in-system concentration will vary depending on scale and leachate strength.

Expected discharge concentration is non-detectable as the product is consumed dissolving the scale.

From the MSDS, the aquatic toxicity is: 4,900 mg/l (96hr LC50 for Rainbow Trout)

- When more than one test species is evaluated for an additive, the more stringent LC50 information is to be used.
- Assume all additives are persistent pollutants.
- Therefore, the multiplication factors to determine the appropriate criteria are 0.05 for acute and 0.01 for chronic.

Acute:	0.05	x	4900	mg/l	=	245	mg/l
Chronic:	0.01	x	4900	mg/l	=	49	mg/l

Wasteflow (qd) =	0.25	MGD	=	0.38	cfs (Outfall 001)
Streamflow (qs) =	3.09	MGD	=	4.78	cfs (Little Toby Creek)

PMFacute (yca) = 0.09; PMFchronic (ycc) = 0.65 (from Pentox Model)

Effluent: CVHourly = 0.5; CVDaily = 0.5 (default values from Pentox Model)

Acute LTAMULT = 0.373; Chronic LTAMULT = 0.5814; AMLMULT = 1.72

Wasteload Allocation:

(qs)(yca)(cb) + (qd)(WLAa) = [(qs)(yca) + qd][cx] → (4.8 x 0.09 x 0) + (0.38 x WLAa) = [(4.8 x 0.09) + 0.38] x (245)

(qs)(ycc)(cb) + (qd)(WLAc) = [(qs)(ycc) + qd][cx] → (4.8 x 0.65 x 0) + (0.38 x WLAc) = [(4.8 x 0.65) + 0.38] x (49)

Long Term Averages:

LTAacute = WLA * LTAMULT(0.373)

LTAchronic = WLA * LTAMULT(0.5814)

Converting the LTA to an Average Monthly limit (mg/l):

AMLaquatic = governing LTA * AMLMULT(1.72)

WLAa	WLAc	LTAa	LTAc	AML
522.4	449.6	194.8	261.4	335.1

Average Maximum Loading (AML) = **335.1 mg/l**

The expected discharge concentration is non-detectable, which is far less than the AML calculated above.

Therefore, there is no reasonable potential for a water quality criteria violation to occur.

Therefore, Neo Solutions, Inc. - NS SF 450 is authorized to be used for pH adjustment in the Sedimentation Pond prior to Outfall 001.